



# ASVAB

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## Practice Questions

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1. A carpenter earns \$24.50 per hour and works 38 hours in one week. What are his total earnings for that week?

- A. \$907.50
- B. \$893.25
- C. \$876.00
- D. \$931.00

2. A recipe calls for  $\frac{3}{4}$  cup of sugar to make 24 cookies. How much sugar is needed to make 48 cookies?

- A.  $1 \frac{1}{4}$  cups
- B. 1 cup
- C.  $1 \frac{1}{2}$  cups
- D. 2 cups

3. A fuel tank holds 60 gallons and is currently  $\frac{2}{5}$  full. How many gallons are in the tank?

- A. 20 gallons
- B. 24 gallons
- C. 30 gallons
- D. 36 gallons

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4. A store marks up a jacket that cost \$80 wholesale by 35%. What is the selling price?

- A. \$108.00
- B. \$115.00
- C. \$112.00
- D. \$118.00



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**5. A train covers 270 miles in 4.5 hours. At the same speed, how long will it take to cover 420 miles?**

- A. 6.5 hours
- B. 7 hours
- C. 7.5 hours
- D. 6 hours

**6. Two workers can paint a fence together in 6 hours. One worker alone takes 10 hours. How long would the second worker take alone?**

- A. 18 hours
- B. 16 hours
- C. 12 hours
- D. 15 hours

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**7. A soldier's base pay is \$2,400 per month. After a 12.5% raise, what is the new monthly pay?**

- A. \$2,640
- B. \$2,730
- C. \$2,700
- D. \$2,760

**8. A mixture contains antifreeze and water in a ratio of 3:7. If the total mixture is 15 liters, how many liters of antifreeze are present?**

- A. 6.0 liters
- B. 5.0 liters
- C. 4.5 liters
- D. 3.5 liters

**9. An investor places \$5,000 in a simple-interest account at 6% annual interest. How much total interest is earned over 2.5 years?**

- A. \$600
- B. \$750
- C. \$800
- D. \$700



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**10. A car travels 180 miles on 6 gallons of gasoline. At this rate, how many gallons are needed to travel 255 miles?**

- A. 7.5 gallons
- B. 8.5 gallons
- C. 8.0 gallons
- D. 9.0 gallons

**11. A price decreased from \$640 to \$544. What is the percentage decrease?**

- A. 17%
- B. 15%
- C. 20%
- D. 12%

**12. A warehouse has 3 shifts. Shift 1 processes 40% of daily inventory, Shift 2 processes 35%, and Shift 3 handles the rest. If Shift 3 processes 500 units, what is the total daily inventory?**

- A. 2,200 units
- B. 2,000 units
- C. 1,800 units
- D. 2,500 units

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**13. A tank is filled by Pipe A at  $\frac{1}{4}$  tank per hour and simultaneously drained by Pipe B at  $\frac{1}{6}$  tank per hour. The tank starts  $\frac{1}{3}$  full. How many hours until the tank is completely full?**

- A. 8 hours
- B. 6 hours
- C. 9 hours
- D. 7 hours



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14. A contractor bids a job at \$48,000. Materials cost \$18,000 and labor accounts for  $\frac{5}{8}$  of the remaining amount. What is the labor cost?

- A. \$18,750
- B. \$16,500
- C. \$19,500
- D. \$20,000

15. A machine produces widgets at a defect rate of 1.5%. In a production run of 8,400 widgets, how many are expected to be defective?

- A. 112
- B. 120
- C. 132
- D. 126

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16. A loan of \$12,000 is taken out at 8% simple annual interest. After some time, the total amount owed (principal + interest) is \$14,880. How many years was the loan outstanding?

- A. 2.5 years
- B. 3.0 years
- C. 3.5 years
- D. 4.0 years

17. A rectangular garden has a length of 12 meters and a width of 7 meters. What is the perimeter of the garden?

- A. 42 meters
- B. 19 meters
- C. 84 meters
- D. 38 meters

18. Which of the following is equivalent to  $5^2 \times 5^3$ ?

- A. 25■
- B. 10■
- C. 5■
- D. 5■



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19. Solve for  $x$ :  $4x - 9 = 19$

- A.  $x = 2.5$
- B.  $x = 5$
- C.  $x = 10$
- D.  $x = 7$

20. A triangle has a base of 10 cm and a height of 6 cm. What is its area?

- A.  $60 \text{ cm}^2$
- B.  $30 \text{ cm}^2$
- C.  $25 \text{ cm}^2$
- D.  $16 \text{ cm}^2$

21. Which value of  $x$  satisfies the equation  $x^2 - 5x + 6 = 0$ ?

- A.  $x = 2$  or  $x = 3$
- B.  $x = 2$  or  $x = -3$
- C.  $x = 1$  or  $x = 6$
- D.  $x = -2$  or  $x = -3$

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22. A cylindrical water tank has a radius of 3 feet and a height of 10 feet. What is the volume of the tank? (Use  $\pi \approx 3.14$ )

- A.  $565.2 \text{ ft}^3$
- B.  $282.6 \text{ ft}^3$
- C.  $188.4 \text{ ft}^3$
- D.  $94.2 \text{ ft}^3$

23. If  $2^n = 64$ , what is the value of  $n$ ?

- A. 8
- B. 6
- C. 7
- D. 5



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24. Two supplementary angles are in the ratio 2:3. What is the measure of the larger angle?

- A.  $90^\circ$
- B.  $108^\circ$
- C.  $72^\circ$
- D.  $120^\circ$

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25. Simplify:  $(3x^2y)(4xy^3)$

- A.  $12x^3y^3$
- B.  $7x^3y$
- C.  $12x^3y$
- D.  $12x^2y^3$

26. If  $x + y = 10$  and  $xy = 21$ , what is the value of  $x^2 + y^2$ ?

- A. 58
- B. 100
- C. 121
- D. 42

27. A sphere has a surface area of  $144\pi$  cm<sup>2</sup>. What is its volume?

- A.  $36\pi$  cm<sup>3</sup>
- B.  $144\pi$  cm<sup>3</sup>
- C.  $576\pi$  cm<sup>3</sup>
- D.  $288\pi$  cm<sup>3</sup>

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28. Which expression is equivalent to  $(x^2 - 9) / (x^2 - x - 6)$ ?

- A.  $(x + 3)/(x + 2)$
- B.  $(x + 3)/(x - 2)$
- C.  $(x - 3)/(x + 2)$
- D.  $(x - 3)/(x - 2)$



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29. What is the value of  $(27)^{-2/3}$ ?

- A.  $1/9$
- B.  $1/3$
- C. 9
- D.  $-9$

30. An interior angle of a regular polygon measures  $150^\circ$ . How many sides does the polygon have?

- A. 12
- B. 10
- C. 9
- D. 15



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## Answer Key & Explanations

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**1. D — \$931.00**

Multiply hourly rate by hours worked:  $\$24.50 \times 38 = \$931.00$ .

**2. C — 1 1/2 cups**

Doubling the batch doubles all ingredients:  $3/4 \times 2 = 1\ 1/2$  cups.

**3. B — 24 gallons**

Multiply the full capacity by the fraction filled:  $60 \times 2/5 = 24$  gallons.

**4. A — \$108.00**

Markup = 35% of \$80 = \$28; selling price =  $\$80 + \$28 = \$108.00$ .

**5. B — 7 hours**

Speed =  $270 \div 4.5 = 60$  mph; time for 420 miles =  $420 \div 60 = 7$  hours.

**6. D — 15 hours**

Combined rate =  $1/6$ ; first worker's rate =  $1/10$ ; second worker's rate =  $1/6 - 1/10 = 1/15$ , so the second worker takes 15 hours alone.

**7. C — \$2,700**

Raise = 12.5% of \$2,400 = \$300; new pay =  $\$2,400 + \$300 = \$2,700$ .

**8. C — 4.5 liters**

Antifreeze is 3 out of 10 total parts:  $15 \times (3/10) = 4.5$  liters.

**9. B — \$750**

Simple interest =  $P \times r \times t = \$5,000 \times 0.06 \times 2.5 = \$750$ .

**10. B — 8.5 gallons**

Fuel economy =  $180 \div 6 = 30$  mpg; gallons needed =  $255 \div 30 = 8.5$  gallons.

**11. B — 15%**

Decrease = \$96; percentage decrease =  $(96 \div 640) \times 100 = 15\%$ .

**12. B — 2,000 units**

Shift 3 handles  $100\% - 40\% - 35\% = 25\%$  of inventory; total =  $500 \div 0.25 = 2,000$  units.

**13. A — 8 hours**

Net fill rate =  $1/4 - 1/6 = 1/12$  per hour; remaining capacity =  $2/3$ ; time =  $(2/3) \div (1/12) = 8$  hours.

**14. A — \$18,750**

Amount after materials =  $\$48,000 - \$18,000 = \$30,000$ ; labor =  $5/8 \times \$30,000 = \$18,750$ .

**15. D — 126**

Defective count =  $1.5\% \times 8,400 = 0.015 \times 8,400 = 126$ .



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**16. B — 3.0 years**

Interest accrued =  $\$14,880 - \$12,000 = \$2,880$ ; using  $I = P \times r \times t$ :  $2,880 = 12,000 \times 0.08 \times t$ , so  $t = 2,880 \div 960 = 3$  years.

**17. D — 38 meters**

Perimeter of a rectangle =  $2(\text{length} + \text{width}) = 2(12 + 7) = 2(19) = 38$  meters.

**18. D — 5■**

When multiplying powers with the same base, add the exponents:  $5^2 \times 5^3 = 5^{(2+3)} = 5^5$ .

**19. D —  $x = 7$** 

Add 9 to both sides to get  $4x = 28$ , then divide by 4 to get  $x = 7$ .

**20. B — 30 cm<sup>2</sup>**

Area of a triangle =  $\frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times 10 \times 6 = 30$  cm<sup>2</sup>.

**21. A —  $x = 2$  or  $x = 3$** 

Factor the quadratic:  $(x - 2)(x - 3) = 0$ , giving solutions  $x = 2$  or  $x = 3$ .

**22. B — 282.6 ft<sup>3</sup>**

Volume of a cylinder =  $\pi \times r^2 \times h = 3.14 \times 9 \times 10 = 282.6$  ft<sup>3</sup>.

**23. B — 6**

Since  $2^n = 64$ ,  $n = 6$ ; each successive power of 2 doubles the result: 2, 4, 8, 16, 32, 64.

**24. B — 108°**

Supplementary angles sum to 180°; with ratio 2:3 the parts are  $2x$  and  $3x$ , so  $5x = 180^\circ$ ,  $x = 36^\circ$ , and the larger angle =  $3 \times 36^\circ = 108^\circ$ .

**25. C — 12x<sup>3</sup>y■**

Multiply the coefficients ( $3 \times 4 = 12$ ) and add exponents of like bases:  $x^{(2+1)} = x^3$  and  $y^{(1+3)} = y^4$ , giving  $12x^3y^4$ .

**26. A — 58**

Use the identity  $x^2 + y^2 = (x + y)^2 - 2xy = 100 - 2(21) = 100 - 42 = 58$ .

**27. D — 288π cm<sup>3</sup>**

Surface area =  $4\pi r^2 = 144\pi$  gives  $r^2 = 36$ , so  $r = 6$ ; volume =  $(\frac{4}{3})\pi r^3 = (\frac{4}{3})\pi(216) = 288\pi$  cm<sup>3</sup>.

**28. A —  $(x + 3)/(x + 2)$** 

Factor numerator as  $(x-3)(x+3)$  and denominator as  $(x-3)(x+2)$ ; cancel the  $(x-3)$  factor to get  $(x+3)/(x+2)$ .

**29. A — 1/9**

$27^{(1/3)} = 3$ , so  $27^{(2/3)} = 3^2 = 9$ ; the negative exponent gives the reciprocal:  $27^{(-2/3)} = 1/9$ .

**30. A — 12**

For a regular  $n$ -gon, interior angle =  $(n-2) \times 180/n$ ; setting equal to 150 gives  $150n = 180n - 360$ , so  $30n = 360$ ,  $n = 12$ .



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